

as much protected by being able to flower earlier in the year, as if they had been located on the top of high hills or mountains?

The power to endure cold and wet displayed by many members of our vernal flora is very remarkable. Thus *Ranunculus bulbosus* and *R. acris*, *Stellaria media*, &c., are frequently found in flower all through the winter, unless the season be extra cold. Many other early bloomers among our common flowers are remarkable for their durability, whilst the late flowering plants are generally noticeable for the short space during which they bloom. This indicates a hardihood on the part of our vernal flora which cannot be explained except by reference to the climatal experience of the species. Some of them, as the groundsel and chickweed, may have exchanged an entomophilous for an anemophilous habit, or have become self-fertilised by the change.

Again, it must have been observed that many of our early flowering plants display a tendency towards a seasonable division of labour. All of them either flower before they leaf, or show a tendency to do so, as with coltsfoot (*Tussilago farfara*), the crocus (*C. vernus*), the snow-drop (*Galanthus nivalis*), &c. Even the violets (*Viola odorata* and *V. canina*), the daffodil, primrose, cowslip, &c., although they in part leaf when they flower, develop leaves much more abundantly after flowering than before, thus showing an inclination towards dividing the period of active life into two distinct stages—the productive and vegetative. Every one knows how completely this has been effected by the meadow saffron (*Colchicum autumnale*). My impression is that this early flowering tendency is a survival of the habit these plants had to blossom under more rigorous climatal conditions; in short, that our vernal flora must have the same origin assigned to it as an Alpine; that it has survived through being able to bloom at an early period of the year at low levels, instead of flowering at a later season higher up, above the sea-level; protection and advantage being secured in both instances.—*Science Gossip*.

Fall-blooming of *Menyanthes trifoliata*.—One who has herborized for twenty years or so, is never astonished at the freaks of autumnal blooming that flowers take. Every one has seen from time to time stray specimens of *Hepatica* or of the various species of *Viola*, while almost every year *Brunella*, *Achillea*, and the common dandelion, may linger into November. Usually such second efforts lack vigor, and often there are disturbances of the inflorescence. This October has been truly remarkable for the number and variety of such waifs, but if they were only the common loiterers I should not feel it worth while to note them. But to-day I saw a sight which was to me phenomenal—a swamp full of *Menyanthes trifoliata* in full bloom on the 23d of October! I donned my rubber boots and waded into the water, as I have often done in May, gathering

great handfulls of the flowers. I think they must have opened about a week ago, as the racemes had set fruit below. There were many budding clusters also. I account for this display by the fact that the swamp in question was reduced to dusty dryness by the long-continued drouth; this acted on the plants much as their normal winter rest. When followed by rain—flooding the marsh—and then by an extended period of warm weather, they burst forth into flower. A natural consequence, I should suppose, would be a dearth of my favorites next spring.—W. WHITMAN BAILEY, *Brown University*.

Tubers.—That the scales on the tubers represent leaves of the of aerial stems is well known. The study of the phyllotaxy of these subterranean leaves is quite as interesting as that of ordinary leaves. In examining all tubers of cultivated and wild plants that I can obtain, I find that a plant has the same arrangement of foliar organs on tubers that it has on the stem; and where two plans exist, the one at the base of the stem is the one followed by the tuber. Good examples are found in the potato, in which both leaves and scales are alternate; and in *Helianthus doronicoides*, L., and tuberous, L., where the leaves are opposite below and more or less alternate above, the scales on the tubers are opposite. In the latter species scales frequently subtend “knobs”, the tuber branches, which are then opposite and themselves bear scales—the leaves of the branch. The dimorous whorls decussate on tubers as well as do those of the stem. Another interesting fact is the completion of growth as to length in the lower internodes of the tuber while the upper are still quite small—a characteristic of the stem.—AUG. F. FOERSTE, *Dayton, Ohio*.

Notes.—Teachers of botany may be interested in knowing, if they do not know already, that the now common Japanese *Ampelopsis* presents an excellent instance of a uni-foliolate compound leaf. The three-lobed, or sometimes barely lobed and dentate leaflet has all the appearance of a simple leaf, but falls off by a distinct articulation from the top of the extremely long petiole, which is apt to persist sometime thereafter.

In the analysis of *Heterocentron roseum*, of the order *Melastomaceae*, students complain that they can not ascertain the name by the key in the School and Field-book of Botany. I find that the difficulty is in the statement that in that family the calyx is coherent with the ovary. In *Heterocentron*, so far as I have examined specimens, it is distinctly *free*. The ordinal characteristics given by LeMaout and Decaisne, give the alternative of free or coherent.—W. W. BAILEY, *Brown University*.